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EXAMINER	
RAMDHANIE, BOBBY	
ART UNIT	**PAPER NUMBER**
1797	

NOTIFICATION DATE	DELIVERY MODE
11/17/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTO-Legal.PRC@usa.dupont.com

Office Action Summary	Application No.	Applicant(s)	
	10/810,770	MORRIS ET AL.	
	Examiner	Art Unit	
	BOBBY RAMDHANIE	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07/21/2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22,25-27 and 29-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22,25-27 and 29-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 07/21/2008 have been fully considered but they are not persuasive. The following reason is why: Applicants have amended Claims 1-22, 25-27, & 29-38 with an intended use limitation which does not change the physical structure of the device in the newly amended claims.

2. Applicant's arguments, see Remarks, filed 07/21/2008, with respect to the Objection to the Drawings has been fully considered and are persuasive. The objection of the Drawings specifically Figure 1, has been withdrawn.

3. Applicant's arguments, see Remarks, filed 07/21/2008, with respect to the double patenting rejection (submission of the terminal disclaimer) has been fully considered and are persuasive. The rejection of double patenting has been withdrawn.

Response to Amendment

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-22, 25-27, & 29-38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicants have amended Claims 1-22, 25-27, & 29-38 to include an intended use. It is unclear how this intended use changes the physical structure of the device because there is no additional positive

limitation recited to further limit the structure of the device in amended portions of applicants' claims.

DETAILED ACTION

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Smith et al (EP0806657). Regarding Claim 1, Smith et al teaches an apparatus for analyzing a multi-component gas mixture, comprising: (A) An array of four or more chemo/electro-active materials, each chemo/electro-active material exhibiting a different electrical response characteristic, upon exposure at a selected temperature to the gas mixture, than each of the other chemo/electro-active materials; wherein the chemo/electro-active materials are selected from the group consisting of (i) at least one chemo/electro-active material that comprises M^1O_x, and (ii) at least three chemo/electro-active materials each of which comprises $M^1_aM^2_bO_x$; wherein M^1 is selected from the group consisting of Al, Ce, Cr, Cu, Fe, Ga, Mn, Nb, Nd, Ni, Pr, Sb, Sn, Ta, Ti, W and Zn; wherein M^2 is selected from the group consisting of Ga, La, Mn, Ni, Sn, Sr, Ti, W, Y, Zn; wherein M^1 and M^2 are each different in $M^1_aM^2_bO_x$; wherein a, b, and c are each independently about 0.0005 to about 1; and wherein x is a number sufficient so that the oxygen present balances the charges of the other elements in the chemo/electro-active

material; and (b) means for determining the electrical response of each chemo/electro-active material upon exposure of the array to the gas mixture; wherein the apparatus determines the concentration within the multi-component gas mixture of ammonia and one or more nitrogen oxides, and determines the presence or concentration within the mixture of a hydrocarbon. (Claims 6 & 7). Examiner takes the position that a plurality of sensors is equivalent to four or more. Examiner takes the position that M^1O_x is defined as:SnO_2 (Page 12 Table 7) and $M^1_aM^2_bO_x$ is defined as:$SnO_2Sb_2O_3$ (Page 13 line 10). Examiner defines the subscript "c" as zero.

8. For Claim 2, Smith et al teaches the apparatus according to Claim 1, that comprises an array of five or more chemo/electro-active materials wherein the chemo/electro-active materials are selected from the group consisting of at least four 5 chemo/electro-active materials each of which comprises $M^1_aM^2_bO_x$. Examiner defines a plurality of sensors as five or more. Examiner takes the position that M^1O_x is defined as:SnO_2 (Page 12 Table 7) and $M^1_aM^2_bO_x$ is defined as:$SnO_2Sb_2O_3$ (Page 13 line 10). Examiner defines the subscript "c" as zero.

9. For Claim 3, Smith et al teaches an apparatus according to Claim 1 that comprises an array of six or more chemo/electro-active materials wherein the chemo/electro-active materials are selected from the group consisting of at least five chemo/electro-active materials each of which comprises $M^1_aM^2_bO_x$. Examiner takes the position that a plurality of sensors is defined as six or more.

10. For Claim 4, Smith et al teaches an apparatus for analyzing a multi-component gas mixture, comprising: (A) an array of four or more chemo/electro- active materials,

each chemo/electro-active material exhibiting a different electrical response characteristic, upon exposure at a selected temperature to the gas mixture, than each of the other chemo/electro-active materials; wherein the chemo/electro-active materials are selected from the group consisting of (i) at least two chemo/electro-active materials each of which comprises M^1O_x, and (ii) at least two chemo/electro-active materials each of which comprises $M^1_aM^2_bO_x$; wherein M^1 is selected from the group consisting of Al, Ce, Cr, Cu, Fe, Ga, Mn, Nb, Nd, Ni, Pr, Sb, Sn, Ta, Ti, W and Zn; wherein M^2 is selected from the group consisting of Ga, La, Mn, Ni, Sn, Sr, Ti, W, Y, Zn; wherein M^1 and M^2 are each different in $M^1_aM^2_bO_x$; wherein a, b, and c are each independently about 0.0005 to about 1; and wherein x is a number sufficient so that the oxygen present balances the charges of the other elements in the chemo/electro-active material; and (b) means for determining the electrical response of each chemo/electro-active material upon exposure of the array to the gas mixture; wherein the apparatus determines the concentration within the multi-component gas mixture of ammonia and one or more nitrogen oxides, and determines the presence or concentration within the mixture of a hydrocarbon (Claims 6 & 7; Table 7). Examiner takes the position that a plurality of sensors are defined as four.

11. For Claim 5, Smith et al teaches an apparatus according to Claim 4 that comprises an array of five or more chemo/electro-active materials wherein the chemo/electro-active materials are selected from the group consisting of at least three chemo/electro-active materials each of which comprises $M^1_aM^2_bO_x$ (Claims 6 & 7; Table 7). Examiner takes the position that a plurality is defined as five or more.

12. For Claim 6, Smith et al teaches an apparatus according to Claim 4 that comprises an array of six or more chemo/electro-active materials wherein the chemo/electro-active materials are selected from the group consisting of at least four chemo/electro-active materials each of which comprises $M^1_aM^2_bO_x$. (Claims 6 & 7; Table 7). Examiner takes the position that a plurality is defined as six or more.

13. Claims 1, 25-27, 29, 31-34, & 36-38 are rejected under 35 U.S.C. 102(b) as being anticipated by Clifford (US4542640). Regarding Claim 1, Clifford teaches an apparatus for analyzing a multi- component gas mixture, comprising: (A) An array of four or more chemo/electro- active materials, each chemo/electro-active material exhibiting a different electrical response characteristic, upon exposure at a selected temperature to the gas mixture, than each of the other chemo/electro-active materials (Figure 1 Item 1; wherein the chemo/electro-active materials are selected from the group consisting of (i) at least one chemo/electro-active material that comprises M^1O_x (M^1= Sn; Column 8 lines 38-44)) and (ii) at least three chemo/electro-active materials each of which comprises $M^1_aM^2_bO_x$; wherein M^1 is selected from the group consisting of Al, Ce, Cr, Cu, Fe, Ga, Mn, Nb, Nd, Ni, Pr, Sb, Sn, Ta, Ti, W and Zn; wherein M^2 is selected from the group consisting of Ga, La, Mn, Ni, Sn, Sr, Ti, W, Y, Zn; wherein M^1 and M^2 are each different in $M^1_aM^2_bO_x$; wherein a, b, and c are each independently about 0.0005 to about 1; and wherein x is a number sufficient so that the oxygen present balances the charges of the other elements in the chemo/electro-active material (M^1= Nb, Ti, and Sb; M^2= Sn; Column 8 lines 38-44); and (b) means for determining the

electrical response of each chemo/electro-active material upon exposure of the array to the gas mixture (Figure 1; Items 2-4). Examiner defines the subscript "c" as zero.

14. For Claim 25, Clifford teaches an apparatus according to Claim 1 that determines the concentration of a hydrocarbon in the multi-component gas mixture (Figure 1). Examiner takes the position that Clifford teaches the structural limitations of the instant claim and the intended use (determining the concentration of a hydrocarbon in the multi-component gas mixture is an intended use).

15. For Claim 26, Clifford teaches an apparatus according to Claim 1 wherein the component gases in the gas mixture are not separated (Figure 1). Examiner takes the position that Clifford teaches the structural limitations of the instant claim for the apparatus and not the multi-component gas mixture.

16. For Claim 27, Clifford teaches an apparatus according to Claim 1 wherein the electrical responses of the chemo/electro-active materials are determined upon exposure to only the multi-component gas mixture (Figure 1). Examiner takes the position that Clifford teaches the structural limitations of the claim.

17. For Claim 29, Clifford teaches an apparatus according to Claim 1 wherein the multi-component gas mixture is emitted by a process, or is a product of a chemical reaction that is transmitted to a device, and wherein the apparatus further comprises means for utilizing the electrical responses for controlling the process or operation of the device (Figure 1). Examiner takes the position that Clifford teaches the structural limitations of the claim.

18. For Claim 31, Clifford teaches the apparatus of Claim 1. Clifford further teaches equipment for construction, maintenance or industrial operations comprising an apparatus according to Claim 1 (Column 1 lines 9-26).

19. For Claim 32, Clifford teaches an apparatus according to Claim 1. Clifford further teaches the apparatus further comprising heating means for separately heating each chemo/electro- active material (Column 9 lines 14-22).

20. For Claim 33, Clifford teaches an apparatus according to Claim 1. Clifford further teaches the apparatus wherein each chemo/electro-active material is heated to the same temperature (Column 9 lines 14-22). Examiner takes the position that if there is a single heating means, each chem/electro-active material is heated to the same temperature.

21. For Claim 34, Clifford teaches an apparatus according to Claim 1. Clifford further teaches the apparatus wherein one or more chemo/electro-active materials is heated to a different temperature than the other chemo/electro-active materials (Column 9 lines 14-22).

22. For Claim 36, Clifford teaches an apparatus according to Claim 1 wherein the gas mixture comprises an organo-phosphorus gas (Figure 1). Examiner takes the position that Clifford teaches the structural limitations of the claim.

23. For Claim 37, Clifford teaches an apparatus according to Claim 1 which may be held in the human hand (Figure 1).

24. For Claim 38, Clifford teaches an apparatus according to Claim 1 which is located in the ventilation system of a building or car (Column 1 lines 23-26).

Claim Rejections - 35 USC § 103

25. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

26. A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

27. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

28. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al (EP0806657). Regarding Claim 1, Smith et al teaches an apparatus for analyzing a multi- component gas mixture, comprising: (A) An array of chemo/electro-active materials, each chemo/electro-active material exhibiting a different electrical response characteristic, upon exposure at a selected temperature to the gas mixture, than each of the other chemo/electro-active materials; wherein the chemo/electro-active materials are selected from the group consisting of (i) at least one chemo/electro-active material that comprises M^1O_x, and (ii) at least three chemo/electro-active materials each of which comprises $M^l_aM_2bO_x$; wherein M^1 is selected from the group

consisting of Al, Ce, Cr, Cu, Fe, Ga, Mn, Nb, Nd, Ni, Pr, Sb, Sn, Ta, Ti, W and Zn; wherein M^2 is selected from the group consisting of Ga, La, Mn, Ni, Sn, Sr, Ti, W, Y, Zn; wherein M^1 and M^2 are each different in $M^1{}_aM^2{}_bO_x$; wherein a, b, and c are each independently about 0.0005 to about 1; and wherein x is a number sufficient so that the oxygen present balances the charges of the other elements in the chemo/electro-active material; and (b) means for determining the electrical response of each chemo/electro-active material upon exposure of the array to the gas mixture (Claims 6 & 7; Examiner takes the position that M^1O_x is defined as:SnO_2 (Page 12 Table 7) and $M^1{}_aM^2{}_bO_x$ is defined as:$SnO_2Sb_2O_3$ (Page 13 line 10; Examiner defines the subscript "c" as zero). Smith et al does not explicitly teach that the number of sensors is four or more. It would have been obvious to one having ordinary skill in the art at the time the invention was made to manufacture the array with any number of sensors, including one, two, three, four or more, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. St. *Regis Paper Co. v. Bemis Co., 193 USPQ 8.*

29. For Claim 2, Smith et al teaches the apparatus according to Claim 1, except Smith et al does not explicitly teach that the array comprises five or more chemo/electro-active materials. It would have been obvious to one having ordinary skill in the art at the time the invention was made to manufacture the array with any number of sensors, including one, two, three, four or more, since it has been held that mere duplication of the essential working parts of a device

involves only routine skill in the art. St. *Regis Paper Co. v. Bemis Co., 193 USPQ 8.*

30. For Claim 3, Smith et al teaches an apparatus according to Claim 1, except Smith et al does not explicitly teach that the array comprises of six or more chemo/electro-active materials. It would have been obvious to one having ordinary skill in the art at the time the invention was made to manufacture the array with any number of sensors, including one, two, three, four, five, six, or more, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. St. *Regis Paper Co. v. Bemis Co., 193 USPQ 8.*

31. For Claim 4, Smith et al teaches an apparatus for analyzing a multi-component gas mixture, except wherein the array does not explicitly define a plurality of sensors as a number. It would have been obvious to one having ordinary skill in the art at the time the invention was made to manufacture the array with any number of sensors, including one, two, three, four, five, six, or more, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. St. *Regis Paper Co. v. Bemis Co., 193 USPQ 8.*

32. For Claim 5, Smith et al teaches an apparatus according to Claim 4 except where the array comprises five or more chemo/electro-active materials. It would have been obvious to one having ordinary skill in the art at the time the invention was made to manufacture the array with any number of sensors, including one, two, three, four, five, six, or more, since it has been held that mere duplication of

the essential working parts of a device involves only routine skill in the art. St. *Regis Paper Co. v. Bemis Co., 193 USPQ 8.*

33. For Claim 6, Smith et al teaches an apparatus according to Claim 4 except wherein the array is explicitly taught as having six or more chemo/electro-active materials. It would have been obvious to one having ordinary skill in the art at the time the invention was made to manufacture the array with any number of sensors, including one, two, three, four, five, six, or more, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. St. *Regis Paper Co. v. Bemis Co., 193 USPQ 8.*

34. Claims 7-22, & 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clifford (US4543640) in view of Leary (US4347732). Regarding Claim 7, Clifford teaches an apparatus for analyzing a multi- component gas mixture, comprising: (A) An array of four or more chemo/electro- active materials, each chemo/electro-active material exhibiting a different electrical response characteristic, upon exposure at a selected temperature to the gas mixture, than each of the other chemo/electro-active materials (Figure 1 Item 1); wherein the chemo/electro-active materials are selected from the group consisting of (i) at least one chemo/electro-active material that comprises M^1O_x (Column 8 line 40; M^1O_x ; M^1= Sn); (ii) at least two chemo/electro-active materials each of which comprises $M^1_aM^2_bO_x$, (Column 8 lines 38-44; M^1_a= Ti, Nb, Sn M^2_b=Sb) wherein M^1 is selected from the group consisting of Al, Ce, Cr, Cu, Fe, Ga, Mn, Nb, Nd, Ni, Pr, Sb, Sn, Ta, Ti, W and Zn; wherein M^2 and M^3 are each independently selected from the group consisting of Ga, La, Mn, Ni, Sn, Sr, Ti, W, Y,

Zn; wherein M^1 and M^2 are each different in $M^1{}_aM^2{}_bO_x$; wherein a, b and c are each independently about 0.0005 to about 1; and wherein x is a number sufficient so that the oxygen present balances the charges of the other elements in the chemo/electro-active material; and (b) means for determining the electrical response of each chemo/electro-active material upon exposure of the array to the gas mixture; wherein the apparatus determines the concentration within the multi-component gas mixture of ammonia and one or more nitrogen oxides, and determines the presence or concentration within the mixture of a hydrocarbon (Figure 1 Items 2 & 3). Clifford does not teach (iii) at least one chemo/electro-active material that comprises $M^1{}_aM^2{}_bM^3{}_cO_x$; and M^1, M^2 and M^3 are each different in $M^1{}_aM^2{}_bM^3{}_cO_x$. Clifford does teach the use of doping of metals in semiconductors such as titanium to tin oxide gas sensors (Column 7 line 65 to Column 8 line 44). Leary teaches the use of doping gallium in zinc oxide gas sensors (Abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Clifford with Leary to form $M^1{}_aM^2{}_bM^3{}_cO_x$ where M^1 = Ga, M^2= Ti, and M^3 =Zn because according to Clifford, differing relative gas sensitivities can be created by addition of certain metals, “activators," to the bulk composition or to the surface of homogeneous semiconductors gas sensors. Such addition enhances the oxidation of particular gases over metal oxides and results in a greater response to those gases (Column 8 lines 11-16).

35. For Claim 8, the combination of Clifford and Leary teaches an apparatus according to Claim 7. The combination of Clifford and Leary further teaches that the array comprises five or more chemo/electro-active materials wherein the chemo/electro-

active materials are selected from the group consisting of at least three chemo/electro-active materials each of which comprises $M^1_aM^2_bO_x$ (Column 7 line 65 to Column 8 line 23; Clifford and Abstract of Leary where M^1 = Ga; M^2 = Sn, Ti, W, Mn, and Ni).

36. For Clam 9, the combination of Clifford and Leary teaches an apparatus according to Claim 7. The combination of Clifford and Leary further teaches that the array comprises five or more chemo/electro-active materials wherein the chemo/electro-active materials are selected from the group consisting of at least three chemo/electro-active materials each of which comprises $M^1_aM^2_bO_x$ (Column 7 line 65 to Column 8 line 23 M^2 = Sn, Ti, W, Mn, Ni, and Zn of Clifford and Abstract of Leary where M^1 = Ga;).

37. For Claim 10, Clifford teaches an apparatus for analyzing a multi-component gas mixture, comprising: (A) an array of four or more chemo/electro- active materials (Figure 1 Item 1), each chemo/electro-active material exhibiting a different electrical response characteristic, upon exposure at a selected temperature to the gas mixture, than each of the other chemo/electro-active materials; wherein the chemo/electro-active materials are selected from the group consisting of (i) at least two chemo/electro-active material that comprises M^1O_x,(M^1=Sn; Column 8 line 40) and (ii) at least one chemo/electro-active materials each of which comprises $M^1_aM^2_bO_x$. (M^1=Ti, Sb; M^2=Sn) and (b) means for determining the electrical response of each chemo/electro-active material upon exposure of the array to the gas mixture; wherein the apparatus determines the concentration within the multi-component gas mixture of ammonia and one or more nitrogen oxides, and determines the presence or concentration within the mixture of a hydrocarbon (Figure 1 Item 2 & 3). Neither Clifford nor Leary teaches (iii) at least one

chemo/electro-active material that comprises $M^1_aM^2_bM^3_cO_x$; wherein M^1 is selected from the group consisting of Al, Ce, Cr, Cu, Fe, Ga, Mn, Nb, Nd, Ni, Pr, Sb, Sn, Ta, Ti, W and Zn; wherein M^2 and M^3 are each independently selected from the group consisting of Ga, La, Mn, Ni, Sn, Sr, Ti, W, Y, Zn; wherein M^1 and M^2 are each different in M $M^1_aM^2_bO_x$, and M^1, M^2 and M^3 are each different in $M^1_aM^2_bM^3_cO_x$; wherein a, b, and c are each independently about 0.0005 to about 1; and wherein x is a number sufficient so that the oxygen present balances the charges of the other elements in the chemo/electro-active material. Clifford does teach doping of tin oxide with Titanium (Column 8 lines 38-44). Leary does teach zinc oxide gas sensors doped with gallium (Abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Clifford with Leary to form $M^1_aM^2_bM^3_cO_x$ where M^1 = Ga, M^2= Ti, and M^3 =Zn because according to Clifford, differing relative gas sensitivities can be created by addition of certain metals, “activators," to the bulk composition or to the surface of homogeneous semiconductors gas sensors. Such addition enhances the oxidation of particular gases over metal oxides and results in a greater response to those gases (Column 8 lines 11-16).

38. For Claim 11, the combination of Clifford and Leary teaches the apparatus according to Claim 10. Clifford further teaches the array comprises an array of five or more chemo/electro-active materials (Figure 1 Item 1) wherein the chemo/electro-active materials are selected from the group consisting of at least two chemo/electro-active materials each of which comprises $M^1_aM^2_bO_x$ (Column 8 lines 38-44; M^1= Zn, Nb, Ti, Sb, or Mo, & M^2=Sn).

39. For Claim 12, Clifford in combination with Leary teaches an apparatus according to Claim 10. Clifford further teaches an array of six or more chemo/electro-active materials (Figure 1 Item 1) wherein the chemo/electro-active materials are selected from the group consisting of at least three chemo/electro-active materials each of which comprises $M^1_aM^2_bO_x$ (Column 8 lines 38-44; M^1= Zn, Nb, Ti, Sb, or Mo, & M^2=Sn).

40. For Claim 13, Clifford teaches an apparatus for analyzing a multi- component gas mixture, comprising: (A) An array of four or more chemo/electro- active materials, each chemo/electro-active material exhibiting a different electrical response characteristic, upon exposure at a selected temperature to the gas mixture, than each of the other chemo/electro-active materials (Figure 1 Item 1); wherein the chemo/electro-active materials are selected from the group consisting of (i) at least three chemo/electro-active materials each of which comprises $M^1_aM^2_bO_x$ (Column 8 lines 38-44; M^1= Zn, Nb, Ti, Sb, or Mo, & M^2=Sn), and (B) Means for determining the electrical response of each chemo/electro-active material upon exposure of the array to the gas mixture (Figure 1 Items 2-4). Clifford does not teach (ii) at least one chemo/electro-active material that comprises $M^1_aM^2_bM^3_cO_x$; wherein M^1 is selected from the group consisting of Al, Ce, Cr, Cu, Fe, Ga, Mn, Nb, Nd, Ni, Pr, Sb, Sn, Ta, Ti, W and Zn; wherein M^2 and M^3 are each independently selected from the group consisting of Ga, La, Mn, Ni, Sn, Sr, Ti, W, Y, Zn; wherein M^1 and M^2 are each different in $M^1_aM^2_bO_x$, and M^1, M^2 and M^3 are each different in $M^1_aM^2_bM^3_cO_x$; wherein a, b, and c are each independently about 0.0005 to about 1; and wherein x is a number sufficient so that the oxygen present balances the charges of the other elements in the chemo/electro-active material. Clifford does teach

the doping of titanium to tin oxide gas sensors (Column 8 lines 38-44). Leary also teaches the doping of Gallium to zinc oxide (Abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Clifford with Leary to form $M^1_aM^2_bM^3_cO_x$ where M^1 = Ga, M^2= Ti, and M^3 =Zn because according to Clifford, differing relative gas sensitivities can be created by addition of certain metals, “activators," to the bulk composition or to the surface of homogeneous semiconductors gas sensors. Such addition enhances the oxidation of particular gases over metal oxides and results in a greater response to those gases (Column 8 lines 11-16).

41. For Claim 14, Clifford in combination with Leary teaches an apparatus according to Claim 13. Clifford and Leary further teach the array comprises of five or more chemo/electro-active materials wherein the chemo/electro-active materials are selected from the group consisting of at least four chemo/electro-active materials each of which comprises $M^1_aM^2_bO_x$ (Column 8 lines 38-44; M^1= Zn, Nb, Ti, Sb, or Mo, & M^2=Sn).

42. For Claim 15, Clifford in combination with Leary teaches an apparatus according to Claim 13. Clifford further teaches the array of six or more chemo/electro-active materials wherein the chemo/electro-active materials are selected from the group consisting of at least five chemo/electro-active materials each of which comprises $M^1_aM^2_bO_x$ (Column 8 lines 3-44; M^1= Zn, Nb, Ti, Sb, or Mo, & M^2=Sn).

43. For Claim 16, Clifford teaches (a) An apparatus for analyzing a multi-component gas mixture, comprising: (A) An array of four or more chemo/electro-active materials (Figure 1 Item 1), each chemo/electro-active material exhibiting a different electrical response characteristic, upon exposure at a selected temperature to the gas mixture,

than each of the other chemo/electro-active materials; wherein the chemo/electro-active materials are selected from the group consisting of (i) the chemo/electro-active materials that comprise M^1O_x (M^1=Sn), (ii) the chemo/electro-active materials that comprise $M^1_aM^2_bO_x$ (Column 8 lines 3-44) and (b) a heater to continually maintain the chemo/electro-active materials at a minimum temperature of about 500°C or above (Figure 1 Item 2); (c) means for determining an individual electrical response of each chemo/electro-active material upon exposure of the array to the gas mixture (Figure 1 Item 3); and (d) means for obtaining, from no information about the gas mixture other than the individual electrical response of the chemo/electro-active materials, a determination related to the presence or concentration of a component in the gas mixture; wherein the apparatus determines the concentration within the multi-component gas mixture of ammonia and one or more nitrogen oxides, and determines the presence or concentration within the mixture of a hydrocarbon (Figure 1 Item 4). Clifford does not teach the chem/electro-active material is in $M^1_aM^2_bM^3_cO_x$. Clifford does teach the doping of titanium to tin oxide gas sensors (Column 8 lines 38-44). Leary also teaches the doping of Gallium to zinc oxide (Abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Clifford with Leary to form $M^1_aM^2_bM^3_cO_x$ where M^1 = Ga, M^2= Ti, and M^3 =Zn because according to Clifford, differing relative gas sensitivities can be created by addition of certain metals, “activators," to the bulk composition or to the surface of homogeneous semiconductors gas sensors. Such addition enhances the oxidation of particular gases over metal oxides and results in a greater response to those gases (Column 8 lines 11-16).

44. For Claim 17, Clifford in combination with Leary teaches an apparatus according to Claims 1, 4, 7, 10, 13, and 16. Clifford further teaches wherein a chemo/electro-active material that comprises $M^1_aM^2_bO_x$ is selected from the group consisting of a chemo/electro-active material that comprises $Al_aNi_bO_x$, a chemo/electro-active material that comprises $Cr_aMn_bO_x$, a chemo/electro-active material that comprises $Cr_aY_bO_x$, a chemo/electro-actlve material that comprises $Cu_aGa_bO_x$, a chemo/electro-active material that comprises $Cu_aLa_bO_x$, a chemo/electro-active material that comprises $Fe_aLa_bO_x$, a chemo/electro-active material that comprises $Fe_aNi_bO_x$, a chemo/electro-active material that comprises $Fe_aTi_bO_x$, a chemo/electro-active material that comprises $Mn_aTi_bO_x$, a chemo/electro-active material that comprises $Nd_aSr_bO_x$, a chemo/electro-active material that comprises $Nb_aTi_bO_x$, a chemo/electro-active material that comprises $Nb_aW_bO_x$, a chemo/electro-active material that comprises $Ni_aZn_bO_x$, a chemo/electro-active material that comprises $Sb_aSn_bO_x$(Column 8 lines 38-44), a chemo/electro-active material that comprises $Ta_aTi_bO_x$, and a chemo/electro-active material that comprises $Ti_aZn_bO_x$.

45. For Claim 18, Clifford in combination with Leary teaches an apparatus according to Claims 1, 4, 7, 10, 13 and 16. Neither Clifford alone nor Leary alone, teaches a chemo/electro-active material that comprises $M^1_aM^2_bM^3_cO_x$ is selected from the group consisting of a chemo/electro-active material that comprises $Ga_aTi_bZn_cO_x$, a chemo/electro-active material that comprises $Nb_aTi_bZn_cO_x$. Clifford does teach the doping of titanium in tin oxide sensors. Leary teaches the doping of gallium with zinc sensors. It would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify Clifford with Leary to form $M^1_aM^2_bM^3_cO_x$ where M^1 = Ga, M^2= Ti, and M^3 =Zn, from the group consisting of a chemo/electro-active material that comprises $Ga_aTi_bZn_cO_x$, a chemo/electro-active material that comprises $Nb_aTi_bZn_cO_x$ because according to Clifford, differing relative gas sensitivities can be created by addition of certain metals, “activators," to the bulk composition or to the surface of homogeneous semiconductors gas sensors. Such addition enhances the oxidation of particular gases over metal oxides and results in a greater response to those gases (Column 8 lines 11-16).

46. For Claim 19, Clifford teaches an apparatus for analyzing a multi- component gas mixture, comprising: (A) An array of three or more chemo/electro- active materials, each chemo/electro-active material exhibiting a different electrical response characteristic, upon exposure at a selected temperature to the gas mixture, than each of the other chemo/electro-active materials (Figure 1); wherein the chemo/electro-active materials are selected from the group consisting of (i) the chemo/electro-active materials that comprise M^1O_x, (M^1=Sn), (ii) the chemo/electro-active materials that comprise $M^1_aM^2_bO_x$ (Column 8 lines 38-44; M^1_a=Ti, Sn M^2_b=Sn, Sb) and (b) Means for determining an individual electrical response of each chemo/electro-active material upon exposure of the array to the gas mixture; wherein at least three chemo/electro-active materials comprise a group of three materials selected from one of the following groups (Column 8 lines 3-44; Examiner takes the position that since a perovskite type of crystal structure may be used – combinations of the metal oxides obviate these groups. Evidence of this is supported by the fact that Clifford suggest the doping of SnO_2 with Sb_2O_5);

47. the group of chemo/electro-active materials comprising, respectively, AlaNibOx, CraTibOx, and FeaLabOx;

48. the group of chemo/electro-active materials comprising, respectively, CraTibOx, FeaLabOx, and FeaNibOx;

49. the group of chemo/electro-active materials comprising, respectively, FeaLabOx, FeaNibOx, and NiaZnbOx;

50. the group of chemo/electro-active materials comprising, respectively, $Fe_aNi_bO_x$, $Ni_aZn_bO_x$, and $Sb_aSn_bO_{x;}$;

51. the group of chemo/electro-active materials comprising, respectively, AlaNibOx, CraTibOx, and MnaTibOx ;

52. the group of chemo/electro-active materials comprlsing, respectively, NbaTibOx, NiaZnbOx, and SbaSnbOx

53. the group of chemo/electro-active materials comprlslng, respectively, NiaZnbOx, SbaSnbOx, and TaaTibOx

54. the group of chemo/electro-active materials comprlslng, respectively, SbaSnbOx, TaaTibOx, and TiaZnbOx

55. the group of chemo/electro-active materials comprlslng, respectively, CraMnbOx, CraTibOx, and CraYbOx

56. the group of chemo/electro-active materials comprlslng, respectively, CraTibOx, CraYbOx, and CuaGabOx

57. the group of chemo/electro-active materials comprising, respectively, CraYbOx, CuaGabOx, and CUaLabOx

58. the group of chemo/electro-active materials comprising, respectively, CuaGabOx, CuaLabOx, and FeaLabOx

59. the group of chemo/electro-active materials comprising, respectively, CraYbOx, CuaGabOx, and CuaLabOx

60. the group of chemo/electro-active materials comprising, respectively, CuaGabOx, CuaLabOx, and FeaTibOx

61. the group of chemo/electro-active materials comprising, respectively, CraMnbOx, MnaTibOx, and NdaSrbOx

62. the group of chemo/electro-active materials comprising, respectively, CraTibOx, MnaTibOx, and NbaTibZncOx

63. the group of chemo/electro-active materials comprising, respectively, MnaTibOx, NbaTibZncOx, and TaaTibOx

64. the group of chemo/electro-active materials comprising, respectively, NbaTibZncOx, TaaTibOx, and TiaZnbOx

65. the group of chemo/electro-active materials comprising, respectively, GaaTibZncOx, NbaTibOx, and NiaZnbOx

66. the group of chemo/electro-active materials comprising, respectively, NbaTibOx, NiaZnbOx, and SnO2

67. the group of chemo/electro-active materials comprising, respectively, NiaZnbOx, SnO2, and TaaTibOx

68. the group of chemo/electro-active materials comprising, respectively, SnO2, TaaTibOx, and TiaZnbOx

69. the group of chemo/electro-active materials comprising, respectively, TaaTibOx, TiaZnbOx , and ZnO

70. the group of chemo/electro-active materials comprising, respectively, AlaNibOx, CraMnbOx, and CuO

71. the group of chemo/electro-active materials 5 comprising, respectively, CraMnbOx, CuO, and NdaSrbOx

72. the group of chemo/electro-active materials comprising, respectively, CuO, NdaSrbOx, and Pr6011

73. the group of chemo/electro-active materials comprising, respectively, NdaSrbOx, Pr6011, and WO3

74. the group of chemo/electro-active materials comprising, respectively, CuaLabOx, FeaTibOx, and GaaTibZncOx;

75. the group of chemo/electro-active materials comprising, respectively, FeaTibOx, GaaTibZncOx, and NbaWbOx ; wherein a, b, c and x are as set forth above, and wherein the apparatus determines the concentration within the multi-component gas mixture of ammonia and one or more nitrogen oxides, and determines the presence or concentration within the mixture of a hydrocarbon. Clifford does not teach (iii) the chemo/electro-active materials that comprise MlaM2bM3cOx; wherein M1 is selected from the group consisting of Al, Ce, Cr, Cu, Fe, Ga, Mn, Nb, Nd, Ni, Pr, Sb, Sn, Ta, Ti, W and Zn; wherein M2 and M3 are each independently selected from the group consisting of Ga, La, Mn, Ni, Sn, Sr, Ti, W, Y, Zn; wherein MI and M2 are each different in MlaM2bOx, and MI, M2 and M3 are each different in M1aM2bM3cOx; wherein a, b

and c are each independently about 0.0005 to about 1; and wherein x is a number sufficient so that the oxygen present balances the charges of the other elements in the chemo/electro-active material. Clifford does teach the process of doping titanium of tin oxide sensors. Leary teaches the doping of gallium in zinc oxide gas sensors. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Clifford with Leary to form $M^1_aM^2_bM^3_cO_x$ where M^1 = Ga, M^2= Ti, and M^3 =Zn because according to Clifford, differing relative gas sensitivities can be created by addition of certain metals, “activators," to the bulk composition or to the surface of homogeneous semiconductors gas sensors. Such addition enhances the oxidation of particular gases over metal oxides and results in a greater response to those gases (Column 8 lines 11-16).

76. For Claim 20, Clifford teaches an apparatus for analyzing a multi-component gas mixture, comprising: (A) An array of four or more chemo/electro-active materials, each chemo/electro-active material exhibiting a different electrical response characteristic, upon exposure at a selected temperature to the gas mixture, than each of the other chemo/electro-active materials (Figure 1); wherein the chemo/electro-active materials are selected from the group consisting of (i) the chemo/electro-active materials that comprise M^1O_x,(M^1=Sn), (ii) the chemo/electro-active materials that comprise $M^1_aM^2_bO_x$ (Column 8 lines 38-44; M^1_a=Ti, Sn M^2_b=Sn, Sb), and (b) means for determining an individual electrical response of each chemo/electro-active material upon exposure of the array to the gas mixture (Figure 1); wherein at least four chemo/electro-active materials comprise a group of four materials selected from one of the following groups

(Column 8 lines 3-44; Examiner takes the position that since a perovskite type of crystal structure may be used – combinations of the metal oxides obviate this group. Evidence of this is supported by the fact that Clifford suggest the doping of SnO_2 with Sb_2O_5); the group of chemo/electro-active materials comprising, respectively, GaaTibZncOx, NbaTibOx, NiaZnbOx,and SnO2 the group of chemo/electro-active materials comprising, respectively, NbaTibOx, NiaZnbOx, SbaSnbOx, and ZnO the group of chemo/electro-active materials comprising, respectively, NiaZnbOx, SbaSnbOx, TaaTibOx, and ZnO; and the group of chemo/electro-active materials comprising, respectively, SbaSnbOx, TaaTibOx, TiaZnbOx, and ZnO; wherein a, b, c and x are as set forth above, and wherein the apparatus determines the concentration within the multi-component gas mixture of ammonia and one or more nitrogen oxides, and determines the presence or concentration within the mixture of a hydrocarbon. Clifford does not teach (iii) the chemo/electro- active materials that comprise MlaM2bM3cOx; wherein M1 is selected from the group consisting of Al, Ce, Cr, Cu, Fe, Ga, Mn, Nb, Nd, Ni, Pr, Sb, Sn, Ta, Ti, W and Zn; wherein M2 and M3 are each independently selected from the group consisting of Ga, La, Mn, Ni, Sn, Sr, Ti, W, Y, Zn; wherein MI and M2 are each different in MlaM2bOx, and MI, M2 and M3 are each different in MlaM2bM3cOx; wherein a, b and c are each independently about 0.0005 to about 1; and wherein x is a number sufficient so that the oxygen present balances the charges of the other elements in the chemo/electro-active material. Clifford does teach the process of doping titanium of tin oxide sensors. Leary teaches the doping of gallium in zinc oxide gas sensors. It would have been obvious to one of ordinary skill in the art

at the time the invention was made to modify Clifford with Leary to form $M^1{}_aM^2{}_bM^3{}_cO_x$ where M^1 = Ga, M^2= Ti, and M^3 =Zn because according to Clifford, differing relative gas sensitivities can be created by addition of certain metals, “activators," to the bulk composition or to the surface of homogeneous semiconductors gas sensors. Such addition enhances the oxidation of particular gases over metal oxides and results in a greater response to those gases (Column 8 lines 11-16).

77. For Claim 21, Clifford teaches an apparatus for analyzing a multi- component gas mixture, comprising: (A) An array of six or more chemo/electro- active materials, each chemo/electro-active material exhibiting a different electrical response characteristic, upon exposure at a selected temperature to the gas mixture, than each of the other chemo/electro-active materials (Figure 1); wherein the chemo/electro-active materials are selected from the group consisting of (i) the chemo/electro-active materials that comprise M^1O_x (Column 8 line 40; M^1O_x ; M^1= Sn), (ii) the chemo/electro-active materials that comprise MlaM2bOx (Column 8 lines 38-44; $M^1{}_a$=Ti, Sn $M^2{}_b$=Sn, Sb), and (b) means for determining an individual electrical response of each chemo/electro-active material upon exposure of the array to the gas mixture; wherein at least six chemo/electro-active materials comprise a group of four materials selected from one of the following groups the group of chemo/electro-actlve materials comprising, respectively, CraMnbOx, MnaTibOx, NdaSrbOx, NbaTibZncOx, Pr6011, and TiaZnbOx the group of chemo/electro-actlve materials comprising, respectively, AlaNibOx, CraTibOx, FeaLabOx, FeaNibOx, NiaZnbOx, and SbaSnbOx the group of chemo/electro-actlve materials comprising, respectively, AlaNibOx,

CraTibOx, MnaTibOx, NbaTibZncOx, TaaTibOx, and TiaZnbOx the group of chemo/electro-actlve materials comprising, respectively, GaaTibZncOx, NbaTibOx, NiaZnbOx, 15 SbaSnbOx, TaaTibOx, and TiaZnbOx the group of chemo/electro-actlve materials comprising, respectively, GaaTibZncOx, NbaTibOx, NiaZnbOx, SnO2, TaaTibOx, and TiaZnbOx the group of chemo/electro-actlve materials comprising, respectively, NbaTibOx, NiaZnbOx, SbaSnbOx, TaaTibOx, TiaZnbOx, and ZnO the group of chemo/electro-active materials comprising, respectively, CraMnbOx, CraTibOx, CraYbOx, CuaGabOx, CuaLabOx, and FeaLabOx the group of chemo/electro-active materials comprising, respectively, AlaNibOx, CraMnbOx, CuO, NdaSrbOx, Pr6011, and WO3 the group of chemo/electro-active materials comprising, respectively, CraYbOx, CuaGabOx,, CUaLabOx, 35 FeaTibOx, GaaTibZncOx, and NbaWbOx; and the group of chemo/electro-active materials comprising, respectively, CraMnbOx, MnaTibOx, NdaSrbOx, NbaTibZncOx, Pr6011, and TiaZnbOx; wherein a, b, c and x are as set forth above(Column 8 lines 3-44; Examiner takes the position that since a perovskite type of crystal structure may be used – combinations of the metal oxides obviate this group. Evidence of this is supported by the fact that Clifford suggests the doping of SnO_2 with Sb_2O_5). Clifford does not teach (iii) the chemo/electro-active materials that comprise MlaM2bM3cOx; wherein M1 is selected from the group consisting of Al, Ce, Cr, Cu, Fe, Ga, Mn, Nb, Nd, Ni, Pr, Sb, Sn, Ta, Ti, W and Zn; wherein M2 and M3 are each independently selected from the group consisting of Ga, La, Mn, Ni, Sn, Sr, Ti, W, Y, Zn; wherein MI and M2 are each different in MlaM2bOx, and MI, M2 and M3 are each different in

MlaM2bM3cOx; wherein a, b and c are each independently about 0.0005 to about i; and wherein x is a number sufficient so that the oxygen present balances the charges of the other elements in the chemo/electro-active material. Clifford does teach the use of doping of metals in semiconductors such as titanium to tin oxide gas sensors (Column 7 line 65 to Column 8 line 44). Leary teaches the use of doping gallium in zinc oxide gas sensors (Abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Clifford with Leary to form $M^1{}_aM^2{}_bM^3{}_cO_x$ where M^1 = Ga, M^2= Ti, and M^3 =Zn because according to Clifford, differing relative gas sensitivities can be created by addition of certain metals, “activators," to the bulk composition or to the surface of homogeneous semiconductors gas sensors. Such addition enhances the oxidation of particular gases over metal oxides and results in a greater response to those gases (Column 8 lines 11-16).

78. For Claim 22, the combination of Clifford and Leary teaches the apparatus according to Claims 1, 4, 7, 10, 13, 16, 19, 20 and 21. Clifford further teaches the apparatus wherein a chemo/electro-active material further comprises a frit additive (Column 1 lines 45-50). Examiner takes the position that non-metal oxides, sulfates, and organic semiconductor materials define frit additives.

79. For Claim 30, Clifford in combination with Leary teaches the apparatus of claim 1. Leary further teaches a vehicle for transportation (Column 1 lines 9-16).

80. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Clifford. Regarding Claim 35, Clifford teaches an apparatus according to Claim 1, wherein the chemo/electro-active materials. Clifford does not teach that the chem/electro-active

materials are on a substrate made from a material selected from the group consisting of silicon, silicon carbide, silicon nitride, and alumina with a resistive dopant. Clifford does teach that the chem/electro-active materials can be chemically deposited or sintered onto substrates. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the substrate of Clifford to be made out of a substrate made from a material selected from the group consisting of silicon, silicon carbide, silicon nitride, and alumina with a resistive dopant because these materials form uniform molten substrates at the temperatures needed to sintered the chem./electro-active materials.

Telephonic Inquiries

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

81. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BOBBY RAMDHANIE whose telephone number is (571)270-3240. The examiner can normally be reached on Mon-Fri 8-5 (Alt Fri off).

82. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Griffin can be reached on 571-272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

83. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/B. R./

/Walter D. Griffin/
Supervisory Patent Examiner, Art Unit 1797